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ABSTRACT

This student guide is intended to assist persons employed as supervisors in understanding and using communication equipment. Discussed in the first three sections are the following topics: producing and storing information (communicating, storing, and retrieving information and using word processors and talking machines); communicating information (post and telephone, machines that communicate, electronic mail, facsimile machines, electronic banking, and telephone communications); and using information retrieval systems (information retrieval, viewdata, and uses of viewdata systems). Each of these sections contains an introduction, instructional text that is interspersed with reinforcing learning activities, and a section summary. The fourth part of the guide includes a series of performance checks (an end check, a tutor check, and a work-based project). A unit review, which also includes a description of related extension courses and resources, concludes the guide. (MN)

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An Open Tech Project

SUPERVISING COMMUNICATION

63: Communication Systems

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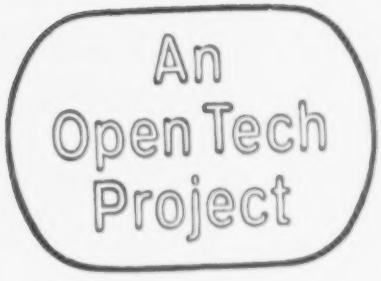
63: COMMUNICATION SYSTEMS

Linda Carr



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Linda Carr
Communication Systems (Number 63 in the CHOICE SERIES of learning units)

Series Editor: Harry V Pardue
Northern Regional Management Centre.

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WORKING GUIDE TO THIS UNIT IN YOUR DEVELOPMENT PROGRAMME

This Unit is now your personal property - it's not for handing back to your training officer or to a tutor. It is your working book.

The Contents will increase in value to you each time you write on one of its pages. This is a working text for your personal notes - without notes its value is limited.

Qualifications forget about certificates and diplomas - you don't need them for this programme. What you do need is the wish:-

* to do your job better
* for personal development

Your study time is really up to you - we guess you will need about 8 hours in total. But it's your time - spend as long as you like.

How am I doing? you can judge for yourself by checking out how well you cope with the tasks we call Activities and Self Checks which occur throughout the unit. You can also get the Tutor Check and/or the Work Based Project to your tutor for an unbiased view of your progress.

Work Pace it's really up to you and depends on your interest. However, if you do well on the Activities and Self Checks, you could afford to speed up a little. Of course, if you don't do as well as you expect then you could slow down a little or flick back into the unit for a quick review of the more difficult ideas.

When in doubt - ask or seek help from:

* your family and friends
* colleagues at work
* your company training staff
* other open learners
* your tutor, by phone, by a visit to your support centre or by dropping your tutor a line through the post.

Don't worry if what you learn doesn't seem to be of use to you now, remember that times change - it may be useful one day. Anyway, just knowing more improves personal confidence.

So now make a start:-

63: COMMUNICATION SYSTEMS by Linda Carr

ABOUT THIS UNIT

Offices have traditionally existed to produce, store and communicate information. In recent years the methods by which this has been done have changed to take advantage of new computer technology.

This means that, whatever our jobs, we are likely to hear new terms whichdescribe modern methods of producing and communicating information. For instance, we may hear the terms 'Word Processing', 'Electronic Mail' or 'Facsimile Machines' used to describe some of the modern communication systems.

This unit should help us to understand the capability of these and other communicating equipment, and also help us understand the impact these changes have on work organisation.

IN THIS UNIT WE WILL:

* identify the equipment which is available to produce, store and communicate information
* examine the areas of work which can benefit most from the use of this equipment
* examine links between items of equipment and areas of overlap
* look at special computer systems which are designed solely to store and communicate information.

AUDIO TAPE Side 1

Before you continue through the unit, you should listen to side 1 of the audio tape that accompanies the unit. You will find it useful if you refer to the unit objectives shown below whilst you listen to the tape. You may wish to make the objectives clearer to yourself by making a note or two on the page as you listen.

OBJECTIVES

When you have worked through this unit you will be BETTER ABLE to:

* identify and describe equipment used in modern communication systems
* list the benefits of various items of equipment in particular work situations
* organise your workteam to make best use of equipment available
* assess how you and your workteam can benefit from this modern communication technology.

PART A PRODUCING AND STORING INFORMATION

1 Introduction

Organisations could not exist without handling information. In some cases the information produced is the 'product' of certain departments within the organisation. Let's think, for example, about the Department of Health and Social Security. Part of this Department exists solely to make social security payments to those entitled to them. The means whereby this is done is processing the information which will lead to the payments being made.

ACTIVITY 1
Time guide
2 mins

Write down at least one other type of information which is processed in a firm.

There are many answers which you could have given, but they are likely to fall into one of two types. Firstly, organisations which produce goods, washing machines for example, need to process information relating to those goods, e.g. orders for washing machines or invoices for goods supplied. Secondly, organisations providing specialist services, such as solicitors, architects or quantity surveyors, also need information processed such as legal documents, or estimates which also have to be produced and communicated to those requiring the information.

2 Communicating Information

If we wish to communicate information from one individual to another there are a number of steps we must go through. For example, we must start with an originator or source of the information. This source might be a person, such as a supervisor with information on his section's output, or it could be a machine. For example, if you wanted information on the mileage of a second hand car you would look at the milometer.

ACTIVITY 2
Time guide
4 mins

In your own words write down the rest of the steps we must go through to communicate information from one person to another.

You will probably not have used the same words to describe the process but first compare your ideas with my description below, and see if you missed any of the steps out.

We have already identified that we need a SOURCE of information - a person or a machine perhaps (e.g. the supervisor might put his output figures into a memo).

The next stage is to PUT THE INFORMATION INTO AN APPROPRIATE FORM.

Next we have to have some means of transferring the information from the SOURCE to the DESTINATION. (The supervisor might put his memo into the internal post for delivery to his boss.)

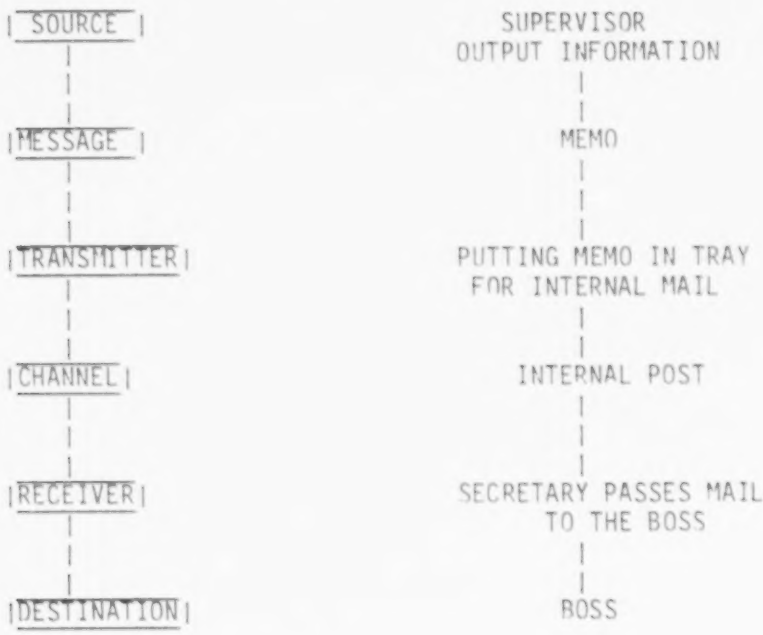
Next someone would have to RECEIVE the information (the boss's secretary might open all the mail in the office).

Finally the information must arrive at its DESTINATION (the boss receives his supervisor's output figures).

Communication systems are often compared to a radio communication as having

SOURCE	Origination of information
MESSAGE	Details to be transmitted
TRANSMITTER	Wireless operator
CHANNEL	Signal produced by transmitter set
RECEIVER	Wireless operator receiving message
DESTINATION	Person receiving message.

If you look back at our list of steps in a communication process you will see that they broadly correspond with these terms.



SELF CHECK 1 Time guide 3 mins

Write the following labels down beside the appropriate description below. Source, Message, Transmitter, Channel, Receiver, Destination.

a) Putting the information into an appropriate form. _____

b) The means by which the information is carried (e.g. post, telephone) _____

c) The person being communicated to _____

d) The originator of the information _____

e) Picking up the information _____

f) Sending the message _____

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) Putting information into an appropriate form - message. b) The means by which the information is carried (e.g. post, telephone) - channel. c) The person being communicated to - destination. d) The originator of the information - source. e) Picking up the information - receiver. f) Sending the message - transmitter.

What we have described so far are the elements of a COMMUNICATION SYSTEM.

The system includes all the people, equipment and electronic devices involved in the communication. Many modern communication systems use machines where traditional systems used people e.g. the supervisor's memo might have been typed into a word processor which was linked by a CABLE to another word processor in the boss's office.

3 Storing and retrieving information

The communication system we have looked at so far must be very closely linked to another system which allows us to STORE and RETRIEVE, or find, information.

ACTIVITY 3
Time guide
3 mins

The supervisor in our previous example would probably want to keep a record of his output figures for future reference. How would you expect him to store the information and then find it again later when he needed it?

Your answer will probably depend on the sort of systems used where you work. However if he just dropped a copy of the figures into a box or a tray he would have great difficulty in finding or retrieving the information at a later date. In most firms the information would probably go into a file in a filing cabinet and would be retrieved using a file number system. If your firm uses a lot of new technology you may have said he would enter the information into a computer or word processor and store it on disk storage for later access. This would be equally correct. If you gave the first answer and you don't understand how the supervisor could store his information on a computer or word processor, don't worry, that's what this unit is about.

Because storing and retrieving information are so closely linked with communicating information (and in modern systems are often done using the same equipment) this unit is going to consider these systems as well as those for communicating information. After all, retrieving a piece of information from a file is really a communication between the source of the information (the file) and the person needing information.

Firstly we are going to look at word processors, which are used for putting information into an appropriate form for communication and also for storing and retrieving the information. In some cases they may also be linked directly so that information can be transferred from one machine to another.

4 Word Processors

In many firms documents which, a year or two ago, would have been produced by typewriter or be handwritten are now being produced by 'Word Processor'.

Let's first examine what a word processor consists of, and then we can consider why it can do a better job than a typewriter or replace handwritten notes.

ACTIVITY 4
Time guide
4 mins

Write down some of the features you can think of which would describe a traditional typewriter.

_____

_____

_____

_____

I don't know exactly what your answer would be, but I expect you included some of the following.

* a set of keys with letters of the alphabet, numbers and some special functions on them
* a ribbon
* the letters themselves (perhaps you included 'golf-ball' if you have used or seen that kind of typewriter)
* a roller to take the paper.

There are a number of other items you could have mentioned, but these are some of the main ones.

As we might expect a word processor will have some of the same features if it is to do a similar job, the first feature which it has which is similar to a typewriter is a keyboard. The keyboard has the same 'QWERTY' layout of the letters as a conventional typewriter and, additionally, many word processors will have extra keys for special functions such as centering a heading. Next a word processor must also have some means of printing the type on a sheet of paper but, unlike the typewriter, this will be a separate piece of equipment, described as a printer. On most word processors, the printer used will be a 'daisy wheel' printer, where the letters are on the end of the spokes of a small wheel. These have the advantage that a different type-face can be used by simply changing the daisy wheel (in a similar way to the changeable 'golf-ball' on many electric typewriters).

So we have established that a word processor is similar to a typewriter in that it has a keyboard and a printer, but unlike the typewriter these are usually separate pieces of equipment.

Let's now look at how a word processor differs from a typewriter. Firstly it has a screen or 'visual display unit' (VDU), and when the letters are typed on the keyboard they appear on the screen not on the paper.

ACTIVITY 5
Time guide
2 mins

Write down one advantage of displaying typewriting on a screen before printing it.

_____

_____

_____

Probably the most obvious advantage is that any errors can be corrected before the type is committed to paper (so we can throw away all those little bottles of correction fluid). There are quite a number of other advantages of word processors which you may have come across, such as automatic underlining and automatic centering of headings. These however, are made possible, not by the presence of a screen, but because a word processor is also a type of computer.

4.1 Processing Unit

A word processor is really a micro-computer which has been 'programmed' to do one specific type of work. Therefore, like a micro-computer, it has its own internal 'brain' or processing unit. The processing unit allows it to obey commands like 'move a piece of text' or 'erase a piece of text'. It also includes a memory, or store, so that text can be saved in the machine while it is being 'processed'. The processing unit is not a separate piece of equipment, and is usually contained within the keyboard and screen area.

SELF CHECK 2
Time guide
4 mins

Complete the following sentences with a suitable word or words.

a Word processors always include a keyboard, a screen, a processing unit and _____.

b A word processor allows type to be entered on a screen before _____.

c The processing unit allows the word processor to obey commands and _____.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) A printer. If you wrote daisy wheel printer this is correct too but remember there are other types of printer which can be used with word processors. Daisy wheel printers are the most usual. b) A word processor allows type to be entered on a screen before being committed to print. c) The processing unit allows the word processor to obey commands and store text or information. You may equally well have said something like 'remember information'.

4.2 Storing Text

We have already seen that the processing unit in the word processor can store text so that we can make changes to it. This is fine for short pieces of text such as a memo or letter, but suppose we are typing a 20 page report, and it gets to the end of the day before we have finished making the necessary corrections. We clearly don't want to leave the machine switched on overnight so we need some permanent storage for the text.

This brings us to the final piece of equipment on our word processor:-

a FLOPPY DISC unit

The floppy disc unit may be a separate piece of equipment or it may be combined with the screen and keyboard. The information is stored on a floppy disc which looks rather like a small gramophone record in its sleeve. It is more flexible than a record, hence the description 'floppy', and comes in one of two sizes, the smaller size (3½") being referred to as a 'mini-floppy'.

Text which has been typed into the word processor and stored in the processing unit can be transferred to the floppy disc, which can then be removed from the machine and stored in a safe place until needed. A single disc, 5¼" diameter, can store a large number of documents.

ACTIVITY 6
Time guide 3 mins

Can you think of any further advantages of floppy discs in addition to being able to complete a document on a different day? Jot down two suggestions.

_____

_____

_____

_____

The following list may include the advantages you have mentioned.

* Standard letters can be stored and used over and over again.
* A lot of filing space can be saved because a large number of documents can be stored on a single disc.
* Because they are small, it is easy to store floppy discs securely.

We have now considered all the parts of the word processor so let's summarise what it consists of:

* a typewriter-style keyboard often with additional special keys
* a screen
* a processing unit
* a printer
* one or more floppy disc units

There are five parts to the word processor but several of these are often combined in a single piece of equipment i.e. some word processors include the screen, keyboard, processing unit and floppy disc units in one piece of equipment. The printer is normally a separate unit.

4.3 Uses of a Word Processor

So far we have learnt that a word processor can be used to produce typewritten text, and that text can be stored for completion on another occasion. Clearly, if these were the only ways in which a word processor differed from a typewriter, they would not be taking over from typewriters in the majority of offices.

ACTIVITY 7
Time guide
3 mins

Make a note of two areas in which a word processor might have an advantage over a conventional typewriter.

_____

_____

_____

_____

As there are many areas in which word processors can be used to advantage I can't predict exactly what your reply will be. However I expect your answers fell into one of the following categories. Don't worry if you couldn't think of any, we are going to study this in detail in the next part of the unit.

* Special features on the word processor allow factors like centering headings, underlining headings, using bold type etc to be done automatically.

* The word processor allows standard paragraphs to be stored and repeated as often as required. Typical examples would be legal documents or standard letters.

* The word processor's memory allows us to move sections of text (even whole paragraphs or pages) into a different sequence. This is very useful when producing reports.

Let's examine these three areas in more detail and see what types of work are likely to benefit from the use of these features.

* Special Features

Here is a list of special features which are available on most word processors.

* Easy correction of errors

* Automatic underlining

* Automatic centering of headings (there is no need to calculate the number of spaces necessary to put a heading in the centre of a page)

* **Bold print** - (as used here) useful for headings

* Right hand justification - this makes typewritten text look more like a printed page in a book with all the lines ending the same distance from the edge of the paper (notice this unit is produced in this way)

* Automatic numbering of paragraphs and pages (if an extra paragraph is added the numbers will change)

* Search facility - the ability to sort through a text for repeated uses of the same word and change them e.g. to capital letters

* Can draw vertical as well as horizontal lines to draw up tables

You may have come across other features on word processors in your workplace.

EXTENSION 2 page 57

Like different models of any equipment, each tends to have a few special features of its own whilst being broadly similar to equipment produced by competitors. The features I have suggested are simply typical of most word processors.

ACTIVITY 8
Time guide
3 mins

What advantage do you think these features would offer to the user of a word processor? Jot down two examples.

The degree of advantage really depends upon how experienced a typist the user is, and how familiar they are with the word processor. You might have included

- an improved appearance of the finished document
- savings in time in producing the document.

Let's examine these more closely.

Appearance of the document

The appearance of a document produced on a word processor should always be as good as that produced by the best typist on a conventional typewriter. A typing supervisor should therefore see a general improvement in quality of finished output. It also means that those of us who are not typists can produce a good finished document. It will, however, take us longer.

Also the features of right-hand justification, split pages (text appearing in columns as in a newspaper) or emboldened text (as used in this unit) all help to make the finished product look more like a printed page than a typewritten page.

However, for general work which does not need those special features, the main advantage is that the average standard of appearance can be improved.

Savings in time

The amount of savings in time which can be made through the use of special features again depends on the quality of the typist. A very experienced typist may even 'beat' the word processor in producing a perfect finished letter. Most users will find some savings in time by using special features such as automatic underlining.

* Storage and Recall facilities

This is probably the main area where greater efficiency can be achieved by the use of word processors. Let's consider some examples.

Example 1 - Mailing Shots

A mail-order company regularly sends out new catalogues to their customers. In order to do this they store the list of about 5000 customers' addresses on floppy discs. When the mailing shot is about to be made the floppy disc is inserted in the machine and the word processor is instructed to print the list of addresses. Even the spacing can be adjusted so that the addresses are printed out at exactly the right intervals to correspond with the address labels on special rolls of paper which can be fed continuously through the printer.

The word processor also provides the added advantage that, as new customers are obtained, they can easily be added to the list. And with facilities to sort the names in alphabetical order, and then search for a particular name, it is very easy to delete names of customers they no longer wish to mail.

ACTIVITY 9
Time guide
3 mins

What do you think is the main benefit of the word processor in the example we have just looked at.

The main benefit, here, is the saving in time taken to retype address labels.

Example 2 Personalised letters

Over the last two or three years my post-box seems to be filled with letters from complete strangers starting 'Dear Linda', which try to persuade me to part with money for anything ranging from daffodil bulbs for the garden to a life insurance and endowment policy promising me idyllic happiness when I retire. Have you had the same experience and wondered how a firm can possibly afford to send a personal letter to each different customer? A few years ago it would have been done by photocopying a standard letter, and then typing the different names in. This, however, was a very tedious process.

It is now much easier than ever before to send standard letters with a personal 'feel' to them by storing the standard letter on floppy disc, and also storing the list of names to whom you would like the letter sent (usually on a different floppy disc). The machine can then be instructed to type the letters, each time inserting a different name from the list we have stored.

ACTIVITY 10
Time guide
2 mins

What do you think is the main benefit of the word processor in this case?

The main benefit in this case is from the improved appearance of the letter, as the alternative way to produce standard letters is to print or photocopy and insert the different names by typing.

Here is an example of a standard letter which could be stored on a floppy disc.

> Dear
>
> Thank you for your application for the post of .
> Would you please attend for interview on
> at . Please call at the main reception on
> arrival and ask for .
>
> Yours sincerely
>
> John Walker
> Personnel Officer.

Each time the letter has to be sent, only the information to fill in the blank spaces need be entered e.g.

Mr Johnson; production operator; Tuesday 1st November; 10.00 am; Mr. Jones.

The finished letter would appear as

> Dear Mr Johnson
>
> Thank you for your application for the post of production operator. Would you please attend for interview on Tuesday 1st November at 10.00 am. Please call at the main reception on arrival and ask for Mr. Jones.
>
> Yours sincerely
>
> John Walker
> Personnel Officer.

Example 3 Legal Documents

At some stage, most firms have to produce a contract or other document which is legally binding. It's very important that the wording of such documents is checked very carefully to ensure that a typing error does not result in a costly legal error. Very often there are a number of standard phrases which can be used in these documents, but with normal typing these would have to be checked for correctness each time they were typed. Using a word processor, all the standard phrases or paragraphs can be stored on a floppy disc, from which they can be retrieved whenever needed in a document.

ACTIVITY 11
Time guide
2 mins

What do you think are the main benefits of the word processor in this case? Jot down one suggestion.

_____

_____

This time there are several important benefits:

* there is a time saving in not having to retype the standard paragraphs
* there is a further time saving in not needing to check the accuracy of these paragraphs
* there is an increase in the accuracy of such documents.

SELF CHECK 3
Time guide
8 mins

Jane is a typing supervisor in a busy office which has just had two word processors installed. She has a number of jobs which she feels would benefit from the use of a word processor, and is trying to assess what advantages the new machines will offer. In particular she has these four jobs requiring early action:

2000 address labels to distribute the firm's latest sales brochures. These are revised every 6 months.

30 letters from the personnel department arranging interviews for job applicants.

10 tenders for contract work.

The first draft of a report to shareholders which is likely to be changed several times before going into final print.

Tick what seems to you the most correct response to this question.

a) In producing the address labels the main advantage of the word processor is likely to be

1) Improved appearance of the typing. |__|

2) Faster typing of the labels. |__|

3) The ability to store the addresses for future use. |__|

Respond to the following three statements by writing TRUE or FALSE in the space provided.

b) The greatest immediate advantage would be from putting the interview letters on the word processor. _____

c) There would be little point at this stage to putting the tenders on the word processor. _____

d) There would be considerable time saving if the report to the Shareholders was typed by word processor. _____

e) List the four jobs in order of priority for typing on the word processor.

_____

_____

_____

_____

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) The major advantage (i.e. the one which will have the most effect on efficiency in the longer term) is the ability to store the information for future use. She would not be particularly concerned about the quality of appearance of address labels, and although it would be quicker to type the labels in the word processor than on a typewriter, the saving would be small compared with the savings made by using the same list every 6 months. On future occasions it will only be necessary to add new addresses and delete those no longer required. b) True, only one letter would need to be typed and then the personal details for each of the other interviewees. c) True, the main advantage of the word processor in the typing of contracts is by the storing of standard paragraphs. Jane would be better waiting until there is time available to put the standard paragraphs on to disc. d) True, there would be a considerable saving in time as the changes to the report could easily be made. e) This, of course, is a matter of judgement but, bearing in mind the urgency of the work, I would first direct to the word processor the 30 letters and the draft report as immediate savings could be made. My next choice would be the address labels as failing to do these on the word processor would mean that they all had to be typed in 6 months time. Only if all this was was complete would I direct the tenders to the word processor. I would be more inclined to type these by traditionalmeans and get the standard paragraphs saved onto disc at some time in the future when it could be more easily fitted into the typing programme.

5 Talking Machines

REFERENCE 2 page 58

The type of word processing equipment we have been looking at so far is usually referred to as a 'stand-alone' or 'dedicated' word processor. This is because each user has a complete word processor i.e. a keyboard, screen, floppy disc unit and printer, and this machine is 'dedicated' to the task of word processing. In other words, it cannot do any other type of computer processing.

You may have seen word processing that didn't appear to match this description. Perhaps there were only one or two printers in a room full of word processors, or maybe you couldn't see any 'floppy disc' units. This is quite possible, as although a stand-alone word processor is ideal where only one or two machines are required, or where a word processor is to be introduced for a trial period, their use is not the most efficient way of replacing large numbers of typewriters by word processors.

Because word processors are a kind of computer with their own 'brain' or 'processing unit', it is possible to link them together by means of cables so that they can 'talk' to each other as well as to the users.

Being able to link word processors, or the parts of word processors, together leads to a number of advantages.

* A number of word processors can share the same printer, saving expense on buying printers

* A number of word processors might share the same storage

* Messages can be sent directly from one machine to another.

Let's examine each of these separately.

5.1 Shared Printers

With a traditional typewriter each machine must be able to produce typescript which is the direct result of pressing keys.

ACTIITY 12
Time guide
3 mins

What are the two features which make the production of typescript on a word processor different from this. Jot down your suggestions.

* _____

* _____

Firstly, the use of a word processor keyboard produces words on a screen not typescript. Secondly, the printer which prints the final typescript prints much more quickly than a typewriter.

These two features mean it is quite feasible for three or four word processors to share one printer. Each user will prepare the text on their own screen and, when they are ready to put the text into print, send a message to the shared printer to print the text. If more than one user tries to use the printer at the same time the text will be stored in the word processor's memory until the printer is free.

It is the relatively high speed of the printer, compared with the rate at which a typist can produce text, which makes it possible for machines to share a printer.

5.2 Shared Storage

In a similar way, instead of each machine having separate 'floppy disc' storage it is possible for a number of word processors to share a disc unit. In this case it would probably not be a floppy disc unit, but a sealed unit containing hard discs (similar in size to an LP record). The advantages of this system are

* all the storage is available all the time (the discs are not removable).

* floppy discs don't have to be stored so security is easy.

* as any machine can access any information on the disc unit it is easier for the supervisor to allocate work.

* larger amounts of information can be stored.

ACTIVITY 13 Looking at these features of shared storage, can you think of one possible disadvantage of the system?
Time guide
2 mins

I hope we can agree that as any machine can access the storage then greater security is needed to ensure that no user accesses information that they should not. A special processing unit which looks after the central storage unit can ensure that users can only use documents they are authorised to access using special passwords.

5.3 Machine to Machine messages

If a number of machines are linked to the same storage then information can be communicated from one machine to another by using that storage medium. Thus text produced by one machine can be stored on central storage and retrieved by another machine. This also means that messages can be sent from one machine to another providing an 'electronic mail'. This is covered in more detail later in the unit.

SELF CHECK 4 Respond to the following statements by writing TRUE or FALSE in the space provided.
Time guide
5 mins

a) A number of word processors can be linked to share a central storage unit. _____

b) A large number of word processors can use the same printer. _____

c) Messages can be sent from one word processor to another. _____

d) Central storage means that any word processor using the storage can access any information held in the storage. _____

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) True. b) False - it would be possible to link a lot of word processors to a single printer but it would not be able to cope with all the work. With the most usual type of printer used with word processors, at least one printer to three machines is usually required. c) True - provided that the machines have been linked by cable. d) False - each user can only access the information they are authorised to use.

Word processors as part of a computer system

EXTENSION 1
page 57

If you have already completed the unit in this series on Computers or have used a home computer (or any other computer) you may think that my description of a word processor sounds very much like a computer. This is true, in fact, because a word processor is a type of computer.

If we look at the hardware elements of a small computer (known as a micro computer) we would find they included

* a keyboard to input information
* a central processing unit
* a printer to print results
* a floppy disc storage unit.

If you have a personal computer at home it may be that you manage without a printer, and use a tape recorder for storage rather than a floppy disc unit. However, the main elements are the same.

The word processing system which we have been looking at so far in this unit is really a micro-computer in which the Central Processing unit has been dedicated entirely to one purpose - producing word processing. Because of this it is often called a 'dedicated' word processor.

Micro-computers, generally, can carry out a whole range of different tasks provided that they have had a program written by a computer programmer to carry out that task. A computer software package that we can buy in any computer shop is a computing program which has been written in a 'language' that can be understood by the computer. These 'programs', or 'packages', can be bought to carry out a whole range of tasks in a business e.g.

* calculating the payroll
* producing the company's accounts
* keeping track of stock.

We can also buy a word-processing package for most micro-computers.

ACTIVITY 14
Time guide
2 mins

There is one main difference between a micro-computer and a dedicated word processor. Jot down what you think that difference is.

I hope we can agree that the main difference is that a micro-computer can be programmed to carry out a whole range of different tasks, whereas a dedicated word processor can only be used for word-processing.

Which type of machine we decide to use will depend upon the range of tasks we want the machine to carry out. If we have a lot of letters, reports, mail lists etc, to be typed then there won't be time to use the machine for other purposes, therefore a dedicated word processor is likely to be used. If in a small office we want a machine which will calculate the payroll, look after customers' accounts and also do some word processing, then we would probably use a micro-computer, with a range of 'programs' or 'packages' to do the different jobs.

EXTENSION 1
page 57

If you would like to know more about computer uses in general in businesses then you might like to read another unit in this series - Computers.

SELF CHECK 5
Time guide
5 mins

Respond by completing the following sentences with a suitable word or words.

a) A _____ is really a micro-computer dedicated to one specific task.

b) Word Processing is one of many _____ which can be carried out by micro-computers.

c) Different tasks are carried out by a micro-computer by using a _____

d) Micro-computers and word processors both use _____ storage units.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) A word processor is really a micro-computer dedicated to one specific task. b) Micro-computers can carry out a number of tasks. Word processing is just one of them. c) These different tasks are carried out by using different programs or packages. d) Floppy disc storage is used on both micro-computers and word processors.

6 Summary

* A communication system must have a:

  source
  message
  transmitter
  channel
  receiver
  destination.

* Communication systems are linked to systems which store and retrieve information.

* A word processor consists of a:

  keyboard
  screen
  processing unit
  printer
  floppy disc storage unit.

* A dedicated word processor is a micro-computer dedicated to one task

* Word processors and micro-computers can be linked together using cables

* Word processors and micro-computers can share storage and printers

* The advantages of word processors over typewriters are due to their ability to store information and print at a very fast rate.

PART B COMMUNICATING INFORMATION

1 Introduction

So far we have been looking at the means available to convert information into a suitable, easily readable form for communication purposes. Now we'll move on to the next stage in the communication process, the means used to transfer the message from its source to its destination. One way to do this is through the post, either internal mail if the information is required inside the organisation, or using the GPO to deliver outside the organisation.

2 Post and Telephone

ACTIVITY 15
Time guide
2 mins

In the past we have usually had to choose between the post and telephone for sending messages. Here are some examples of communicating. Write down whether you would use Post (P) or Telephone (T) against each of them.

A 20-page report for headquarters. _____

Change an agreed meeting time. _____

Notification to 50 branches of holiday arrangements. _____

A product specification (including diagrams). _____

Monthly sales figures to Sales Manager. _____

I think I would use the post for the 20-page report and notification of holiday arrangements to fifty branches and for the product specification. The telephone would probably be appropriate for changing an agreed meeting time. Either the post or the telephone might be the best way of letting the Sales Manager have some monthly sales figures. If the sales information was short and required quickly by the sales manager then the telephone would be the best solution. However if there were a lot of figures, a written report would be better.

ACTIVITY 16
Time guide
2 mins

A written report has one other advantage over the telephone. Jot down what you think it is.

Written information provides a permanent record. Information supplied by telephone can always be lost or forgotten. With written communications an exact copy can always be kept by the sender.

Let's try and summarise the relative advantages of post and telephone as a means of communication.

ACTIVITY 17
Time guide
5 mins

I have written in the advantages and disadvantages of telephone communication below. In the second column write in two advantages and disadvantages you can think of for postal communication.

	Telephone	Postal
Advantages -	quick	_____
	an immediate response can be given.	_____
Disadvantages -	the person being telephoned may not be available	_____
	not practical for transferring large amounts of information	_____
	no permanent record.	

Here are some of the advantages and disadvantages of postal communication. You may have thought of additional ones as well.

Advantages -	It doesn't matter whether the receiver is available when the message arrives
	a permanent record is received
	large amounts of information and diagrams can be sent
	the same message can easily be sent to a number of people.
Disadvantages -	slow, particularly where a reply is required
	no automatic confirmation that the message has been received.

One of the problems with having to choose between the post and the telephone when communicating is that we often require features of both systems e.g. we may want to send a long report very quickly, or we may require confirmation that some diagrams have arrived at their destination. There are clearly benefits to be derived if written material could be transmitted at the speed of a telephone call.

With modern communication systems this is exactly what can happen in a number of different ways. Take the information stored on a word processor. In many cases this will be printed out and then sent to another office. In the other office different text is also stored on electronic disc storage and a reply may be typed on another word processor, printed out and sent back. Savings in both time and cost will be obtained if the two machines can be linked by telephone and the information transferred directly.

3 Machines which communicate

We have already seen earlier in this unit that word processors, or micro-computers, can be linked together to communicate information. Many of the computer applications in businesses will not be carried out by word processors or micro-computers but by large computers known as MAINFRAME computers. If you are using a mainframe computer it will not look a great deal different from a micro-computer or word processor. There will still be a keyboard and screen and possibly a printer alongside. However, the keyboard will not include a central processing unit. This will be held in the mainframe computer somewhere else within your company. The keyboard will be linked to the mainframe computer by cables and can send messages to the computer almost instantaneously. A shared storage unit, similar to that we've already considered except larger, will also be located within the mainframe computer.

SELF CHECK 6
Time guide
3 mins

Respond by completing each sentence with a suitable word or words.

a) A mainframe computer user will have in front of him a _____, a _____, and possibly a _____.

b) The _____ _____ unit will be stored at a central location together with the _____ _____.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) A mainframe computer user will have in front of him a screen, a keyboard and possibly a printer. b) Unlike a micro-computer, however, the mainframe's central processing and storage unit will be stored centrally somewhere else in the workplace.

EXTENSION 1
Page 57

A keyboard which is linked to a mainframe computer is referred to as a TERMINAL. For more details of applications in mainframe computers you might like to read another unit in this series - Computers. For our purposes in this unit it is sufficient to note that it will look and behave very much like a micro-computer connected to shared storage. However when we talk about communications between linked machines, these machines could be either word processors, micro-computers or terminals to a mainframe computer. All of these could also be linked together in a NETWORK. This means we can send messages not just e.g. between word processors, but between word processors and micro-computers, and micro-computers and mainframe computers.

A machine which can be used as a micro-computer or as a terminal to a mainframe computer is often referred to as a WORK STATION. I'm going to use this term when describing the communication links between machines, but you should remember that the same links could be made between word processors, or micro-computers.

4 Electronic Mail

Electronic mail systems can operate either within the firm or externally using the public telephone system. Like a letter, any item of electronic mail must have an address telling it where to go. Information is keyed in at one terminal with instructions to transmit to a certain other named terminal.

A number of electronic mailbox systems are available through which users who subscribe can communicate to each other.

On these systems a message which has been created on a source work station can be delivered direct to the receiver's work station and printed either on a screen or on a printer.

ACTIVITY 18
Time guide
3 mins

Can you think of any problems which might arise using this type of mail facility? Jot down one suggestion.

One clear disadvantage of this type of system at the present is that you can only communicate with other users of the same system. For this reason alone the majority of business mail is likely to continue being sent by traditional means for some time yet. Another problem is that there must be a system available to organise the mail being received electronically. There is a danger that messages are destroyed too quickly or kept too long, eventually filling up all available storage space.

However, electronic mail systems do offer businesses some tremendous advantages.

ACTIVITY 19
Time guide
3 mins

Jot down two advantages of this type of mail system.

These are generally thought to be the main advantages. Perhaps your suggestions are among them.

* Speed. Even quite long documents can be transmitted very quickly from source to destination.

* It is easy to acknowledge receipt of the document.

* It is possible to send a document to a large number of destinations at the same time.

5 Facsimile machines

Think about this situation for a few minutes.

Jim Short, a supervisor in an area gas board, was praising the virtues of their newly-introduced electronic mailbox to Pete, a friend of his who worked in an engineering company. "It's great" he said, "if we have any machine faults I get straight on to the computer and fill in a form with all the details. That's sent immediately to the supplier and within half an hour there'll be a reply letter as what to do to put things right. I used to spend hours hanging onto the phone waiting for the engineer at the other end to become free. Now he deals with each job in sequence as it comes in and a lot of time is saved."

"That'd be no good to us", replied Pete. "We've got a much better system than that. It's called facsimile. The drawings we use on the shop floor sometimes need alterations making in the drawing office. It used to take me half an hour to go up and explain the problem. Now, I ring the draughtsman, tell him there's a problem and send a copy of the drawing through the facsimile machine. He makes the alterations and sends a corrected copy back to me."

"How does that work then?" said Jim.

"It's easy - just like a photocopier. You put the sheet to be copied in the machine and the machine scans the diagram and sends the message down the telephone line to a similar machine at the other end. It takes longer than photocopying mind - usually about three minutes."

ACTIVITY 20
Time guide
4 mins

Is the facsimile machine described by Pete better than the electronic mailbox?

Jot down one advantage that the electronic mailbox would have over the facsimile.

Jot down one advantage that the facsimile machine would have over the electronic mailbox.

I hope we can agree that a facsimile machine isn't necessarily better than an electronic mailbox.

It is better for Pete's requirements, but it would not be better for Jim.

To use facsimile machines we first have to have a written document. With electronic mail the information can be entered straight into the machine.

Diagrams can easily be sent by facsimile machines. It is much more difficult to put diagrams into a computer than text.

Let's examine fascimile (often referred to as Fax) machines in more detail. As Pete described in the example we've just looked at, they are really machines designed to send the equivalent of a photocopy to another location. However they use a completely different technology from photocopiers. A sheet of paper with any image on it can be inserted in the fax machine, and the machine scans the page on a line grid pattern, noting the level of darkness at each point. The grid is then transmitted by telephone to another FAX machine. At the receiving end the machine prints a copy of the document using the grid which has been received by telephone. No computer is involved, and the machine does not recognise the character or symbols it copies.

There are three classes of FAX machines which you may come across in the course of your work.

GROUP I machines	transmit an A4 page, for example, in 4-6 minutes
GROUP II machines	transmit an A4 page, for example, in 2-3 minutes
GROUP III machines	transmit an A4 page, for example, in less than a minute.

The group III machines are faster because they use a different technology, but that need not concern us here.

ACTIVITY 21
Time guide
2 mins

Can you think of any advantage of a group III machine other than the fact that the message is received more quickly? Jot down one suggestion.

One of the costs of using FAX machines is the cost of the use of the telephone. If you are using the public telephone system then the telephone costs of using Group III machines will be much less, as sheets are transmitted much more quickly.

For this reason Group III machines are becoming increasingly popular, however where transmission is between locations in the same company (as is our case example) it is often the practice to use a private telephone line which incurs a fixed cost per annum. In this case the much cheaper, Group II machines, might be suitable provided the speed of 2-3 minutes is acceptable.

One other point we have to bear in mind is that transmission is only as fast as the receiver can take the message. If you are transmitting to a slower machine than yours then it will take as long as the slower machine requires, not as fast as yours can go.

Now all FAX machines are compatible either. In some cases it simply is not technically possible to transmit to a machine of an earlier type.

ACTIVITY 22
Time guide
2 mins

Can you think of any situations other than transmitted diagrams or charts for which facsimile would be very appropriate? Jot down two suggestions.

Any situation where the actual content of the original document is important. For example verifying the signature on a cheque or a document could be done at remote distances using FAX. It might also be useful for transferring documents with legal implications where it is important to have a copy of the original document. It is also a quicker alternative to electronic mail for any information which originates on paper, and which would have to be specially input to a computer or word processor to be sent by electronic mail.

SELF CHECK 7
Time guide
4 mins

Respond to the following statements by writing TRUE or FALSE in the space provided.

1 FAX (Facsimile) machines are only used for transmitting diagrams. _____

2 Electronic mail systems cannot send diagrams. _____

3 The quickest way to transmit a handwritten document is to type it into a word processor. _____

4 Information originating on a word processor or computer can be sent by electronic mail. _____

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) False - any information which is on a single sheet of paper can be sent. b) False - diagrams can be sent from machine to machine but they would have to be input by word processor, or drawn up by a computer program. Some electronic mail systems may only accept messages of a limited length. c) There is no easy answer to this one. It could be sent directly by FAX but it would take up to 3 minutes to send. If the note was short it could be quickly typed into a word processor and sent by electronic mail. This would probably take longer than FAX. d) True - provided that the computer or word processor is connected to an electronic mail system.

6 Electronic Banking

The ability to transfer information between machines has affected many aspects of business, and is also beginning to affect our private lives. One major area is in the handling of money. Banks have for many years transferred monies by telephone links between banks. More sophisticated telecommunication links mean that a European bank could now clear a cheque on an American bank in a few minutes. Some High St banks are now offering customer accounts which can be drawn on by cheques cashed abroad.

There are two more areas of developments which are likely to increasingly affect individual users over the next few years:

* The use of automatic 'tellers' for banking

* the automatic reading of credit cards.

Let's look at the developments in these two areas.

6.1 Automatic tellers

ACTIVITY 23
Time guide
3 mins

If you use automatic banking machines jot down any changes you have noticed since they were first introduced.

The points you have noted will vary, depending on the bank which you use. My points were

* A change from 'vouchers' for a specific sum of money to a re-useable card.
* The amount of money which can be drawn at any one time has increased from £50 to £100.
* The machine can now carry out other banking transactions as well as pay cash e.g. give the balance in your account, order a new cheque book or statement etc.
* The machine will now check with your account to see if you have the money available you wish to withdraw.

The reason for these changes is that the machines now incorporate computer processes which are linked to the bank's mainframe computers which hold the accounts. This means the banking machine which you use can communicate with the computer which holds your bank account.

ACTIVITY 24
Time guide
4 mins

Write down one advantage of automatic banking machines for

the bank

the customer

Points you might have made include

Advantages to the Bank

* the bank needs fewer people to attend to customers

* as the machines are usually on the street the bank does not have to provide a heated room for customers to queue in

* the machines provide an instant means of checking the customer's account. Therefore there can be no unauthorised overdrawing.

Advantages to the customers

* the machines are usually available at any time (although some banks incorporate them in the banking hall)

* it can be quicker (but isn't always)

* the machines may be in a handy location.

You may have identified other advantages to yourself. There are, of course, some disadvantages as well. From the bank's point of view the machines represent a very costly investment, and the customer may not want to queue ouside in the cold. Also some customers may prefer the 'personal' service provided by the bank staff.

One of the most recent developments is to put the machines in other locations than bank walls, such as supermarkets. This clearly offers the user the added advantage of being able to carry out banking transactions whilst doing the weekly shopping. The likelihood is that the number of these machines will increase in non-banking locations.

6.2 Credit card transactions

Currently, the majority of credit card transactions involve the production of a paper voucher which then has to be processed. Clearly, a great deal of work could be saved if the information could be directlyinput into a computer system, and transferred to central main-frame computers for processing.

A system such as this has been tried in a number of garages, where a machine which could automatically 'read' the information on a credit card was installed and connected to the Credit Company's computer.

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Further developments of these type of systems are sure to emerge over the next few years with supermarkets having machines which will directly charge monies to a credit company account. The only factor preventing this is the large investment cost involved in the machines to read the cards and the systems to connect them to the credit company's computers.

7 Telephone Communications

So far we have been looking at systems like electronic mail, which in certain circumstances have replaced telephone communications. However, telephones still remain one of the major means of communicating information in a business, and telephone services offered have also been improved with technological developments.

Actual telephone facilities available depend upon both the type of exchange used and the type of telephone. Here are some of the features which might be available on modern electronic telephones.

* push-button numbers - which are faster to use
* auto-dialler - stores frequently-used telephone numbers which can be used by selecting one or two digits
* automatic re-dial - redials the last telephone number asked for until it is available
* on-hook dialling - it is not necessary to lift the handset to place a call
* loudspeaker output - so that several people can listen at once to the call
* teleconferencing - it is possible for several people to be simultaneously connected by telephone allowing a discussion between all of them to take place
* automatic answering machines - can pass on or receive a message if you are not available (these can be attached to any telephone)
* portable answering units - these replace the handset and are about the size of a calculator. They can only be used within a limited range of distance from the main handset.

ACTIVITY 25
Time guide
3 mins

For each of the situations described below select an appropriate feature from the list above which would help with communication.

a) The production supervisor in a small print work shop who has to answer customer queries on the progress of jobs.

b) A sales manager needs to communicate an important sales promotion to his sales team of five sales staff and get their reaction to the promotion.

c) A stores manager wants to place orders for replacement parts whilst accessing the stock control records by computer terminal.

d) An office supervisor is having difficulty in calling out an emergency maintenance crew to repair the photocopying machine because the number is constantly engaged.

I have selected the items which I think would help below. You may have thought other facilities would be useful - the main thing is to match appropriate application to the equipment available.

a) The production supervisor would find a portable answering unit useful, as he could answer queries whilst actually checking the progress of the work.

b) The sales manager would find a teleconferencing facility useful as he could brief all the salesteam at the same time, and get their reactions immediately. You might also have thought an automatic answering machine would be useful in case he had difficulty in contacting them.

c) The stores manager would find the onhook dialling facility useful as he could make the call and have both hands free to operate the computer. (With this facility you can speak into a microphone pickup in the phone without using the hand-set.)

d) the office supervisor would find it very useful to have an automatic re-dial facility which would allow frequent re-dialling with a considerable saving in time.

Let's try and summarise some of the advantages of new telephone systems over traditional links.

* Time can be saved by automatic numbering and re-dialling facilities

* We are able to move around whilst using telephones.

ACTIVITY 26
Time guide
2 mins

Write down two other advantages of the telephone systems described above which the usual basic telephone service does not have.

I hope we can agree that the main advantages are the ability to communicate with groups of people rather than just individuals and the ability to leave messages for those who are not available.

SELF CHECK 8 Here are the four main benefits of electronic telephones.
Time guide
5 mins

a) Dialling time saved.

b) Ability to move around.

c) Ability to communicate with groups.

d) Ability to leave messages.

Against each of the following features, write a letter to indicate which is the main benefit derived.

1) Push-button numbers _____

2) Auto-dialling _____

3) Automatic re-dial _____

4) On-hook dialling _____

5) Loudspeaker output _____

6) Teleconferencing _____

7) Automatic answering _____

8) Portable answering units _____

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. Dialling time saved is derived from push-button numbers, auto-dialling and automatic re-dial. The ability to move around is derived from on-hook dialling and portable answering units. The ability to communicate with groups is derived from loudspeaker output and teleconferencing. The ability to leave messages is derived from automatic answering.

8 Summary

* Work stations (computers and word processors) can be linked by cables and telephone networks.

* Electronic mail can be used to send a message from one work station to another (or several others).

* Facsimile machines can transmit copies of documents using telephone lines.

* Automatic banking machines can be used to

    obtain cash
    check balances
    pay in cash
    obtain a statement.

  These extend banking hours for customers and reduce pressure on bank staff.

* Electronic telephones may have available

    push button numbers
    automatic dialling
    automatic re-dial
    on-hook dialling
    loudspeaker output
    teleconferencing
    automatic answering.

  These reduce dialling time

    allow you to move around

    allow you to communicate with groups

    allow you to leave messages.

PART C INFORMATION RETRIEVAL SYSTEMS

1 Introduction

Another development for storing and communicating information which is becoming more widely used is know as

VIEWDATA or VIDEOTEXT

These names can be usedinterchangeably to describe a system where information is stored on a series of 'frames' or 'pages'. These 'frames' of information look very similar to the pages of information transmitted by Teletext usingtelevision broadcasters' methods. You have probably seen some of these pages displayed on your television set under the heading of either CEEFAX or ORACLE.

2 Information Retrieval

Whilst Teletext is simply a system for transmitting a small number of frames of information (a few hundred) by means of normal television broadcasting channels, Viewdata is a system for storing and communicating almost unlimited amounts of information.

ACTIVITY 27
Time guide
3 mins

Jot down two other methods of storing and communicating large amounts of information.

* _____

_____

* _____

_____

The possibilities are endless and it's quite likely that we've thought of very different examples. Here are a few of my suggestions:

books
directorjes
railway timetables
files (of letters for example)
computers
word processors

Viewdata systems combine some of the advantages of all these methods. Let's consider how we retrieve information with each of the systems I've mentioned.

Books or Directories

Let's suppose I want to know the time of a train from London to Glasgow and some possible hotels to stay in when I get there. First, I would have to go to (or telephone) somewhere where the directories are kept e.g. library or railway station. Secondly, I would have to look in the Index for 'London to Glasgow' and for hotels in Glasgow. Thirdly, this would refer me to page numbers on which the information was kept.

Letters from a file

In order to retrieve a letter from a file in a filing cabinet, I would first need to know the order in which the letters had been stored e.g. alphabetical order or date order. The name or the date would then indicate which part of the filing cabinet to search.

Payroll record from a computer

In this case the information could only be retrieved by someone who was trained to use the computer. The process is similar, however, to retrieving information from a file in a filing cabinet. In this case the computer would need to be told where to find the information (the name of a file) and the name of the person whose record we are looking for. The computer would then retrieve the record for us.

Word processor

Information can be stored and retrieved on a word processor in a similar way to a computer. The amount of information stored by a word processor will normally be less.

ACTIVITY 28
Time guide
3 mins

All these retrieval systems have two elements in common.

Jot down one of them.

_____

_____

I hope we can agree that all these systems have these two elements in common.

* For each system there has to be some means of storing information.

* There must be some means of finding information.

Imagine a library full of books kept in a totally random order. It is unlikely that the library would be used very much, because readers would be unable to find the book they wanted.

ACTIVITY 29
Time guide
5 mins

The retrieval systems we have just looked at differ from each other in three main ways.

Jot down one way in which they differ.

Here are three main differences (although you may well have found others).

* the size of the storage facility

* the speed at which the information can be retrieved

* the ease with which the information can be found, e.g. information stored in filing cabinets takes up far more space than information stored by computer or word processor.

In order to get information from a book we would normally have to travel to a library and therefore it would take time to retrieve the information. To get information from a computer we would have to be trained to use a computer, therefore it is less easy to access the information but computers are becoming increasingly 'user friendly', which means easier for the non-expert to use competently.

3 Viewdata

Viewdata is a system which combines the advantages of other retrieval systems in the following ways:

STORAGE - the information is stored by computer and the capacity can be increased by adding additional computer storage. The size of storage can therefore be almost unlimited.

FINDING THE INFORMATION - The information is stored in a way which makes it very easy to find, without a great deal of training.

SPEED OF ACCESS - the information can be accessed very quickly.

UP-DATING - the information is easily updated and becomes available immediately.

Perhaps you already use two of them, Ceefax and Oracle, through your television at home.

SELF CHECK 9
Time guide
5 mins

Complete the following sentences with a suitable word or words.

a) Retrieval systems must include some means of _____ information and some means of _____ the information.

b) Information on Viewdata systems is stored in the form of _____.

c) Information on Viewdata systems is stored by _____.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) Retrieval systems must include some means of storing information and some means of finding (or retrieving) the information. b) Information on Viewdata systems is stored in the form of pages or frames. c) Information on Viewdata systems is stored by computer.

3.1 Viewdata systems

ACTIVITY 30
Time guide
3 mins

A viewdata system uses a computer to store infomation. Jot down two other activities which must take place in order for this to be an information retrieval system.

The information must be entered into the computer, and also be accessed from the computer i.e. we have INPUT of information and OUTPUT.

Input and output of information can be done at any location provided that there is a telephone line connecting that location with the computer. This can either be on the public telephone network or a private exchange.

3.2 Viewdata Users

The user of a viewdata system accesses information by means of a screen or a special viewdata television (which may be a conventional TV with a special adaptor) and a key pad or a keyboard. One method of accessing information provides the user with a 'menu' of possible alternatives. A new page is accessed by choosing one of the alternatives on the menu.

ACTIVITY 31
Time guide 1 min

If a viewdata screen offered the following menu what would you do to access some information on wage rates?

Press key
1 product information
2 employee information
3 sales information
4 stock information.

To obtain information on wage rates we would key 2 or press the key marked 2 on the key pad or keyboard. This would take us to another menu e.g.

1 employee records
2 wage rates
3 training
4 manpower requirements.

In this case we would key in 2 again and another menu would be given, possibly giving different categories of employees. Using this repetitive system we will eventually reach the information we require.

ACTIVITY 32
Time guide
2 mins

Respond to these statements by writing TRUE or FALSE in the space provided.

a) The menu system allows us to access information quickly on a Viewdata System.

_____

b) It is very easy to access information using a viewdata menu system.

_____

a) False - accessing using a menu can be slow and cumbersome.

b) True - virtually no training is needed to access information using a menu system.

You may now be wondering why I said earlier in the unit that viewdata allowed us to access information quickly. Well it does, but not necessarily by using the menu system. With the menus it is easy to find information we require even if we are unfamiliar with the system. If we use the system frequently, then we may often be accessing the same page of information e.g. the latest stock position for a particular product. In that case as all pages are numbered, we can go directly to the page we require by using the page number and the information will be displayed immediately.

3.3 Word Search facilities

An alternative way of accessing information through a viewdata system is with a word search facility. If this facility is provided, and we want to access information on wage rates, we would simply type in 'wage rates' and the system would search for the pages of information in wage rates. In this type of system the more information we are able to input, the quicker will be the search time. If for instance we type in 'wage rates: plumbers' it would go directly to the information we require. This system can only be used when we are using a full keyboard (with letters, numbers and other characters) not if we are using a key pad which only has numbers on it.

3.4 Inputting information to Viewdata

Information can only be accessed from a viewdata system if it has been entered into the viewdata computer in the correct form (i.e. 'pages' or 'frames' of information). Information can now be entered into viewdata systems in two ways.

by the use of an editing terminal consisting of keyboard and screen.

directly from another computer.

Let's examine the first of these.

Initially, when viewdata was introduced, all information had to be entered into the computer by use of a keyboard and screen, which is very similar to a word processor. Each page of information is set up on the screen and then sent, by telephone line, to the computer where it is stored. As special large characters are used in viewdata systems, the editing terminal, although similar to a word processor, is not the same and therefore the operation will require special training. Any information can be entered into a Viewdata system provided that

it is in the correct 'page' format

and

there is a menu system and/or a word search system to access the information.

One of the problems with entering all the information into the system through editing terminals is that information which is already held on computers is duplicated. It is obviously wasteful of time if an operator is busy keying into one computer information which is already held on another computer.

ACTIVITY 33
Time guide
3 mins

What is the difference between the way information is stored on viewdata computers and the way it is stored on conventinal computers?

The information on viewdata computers is stored in the form of 'pages' or 'frames'. So if we could convert the information on the conventional computer into the special 'page' format and then link the computers by telephone line the information could be directly transferred. This can now be done using a system called 'GATEWAY'.

Using Gateway, information can be transferred directly from a conventional computer to a VIEWDATA computer. This reduces a lot of duplication.

SELF CHECK 10
Time guide
5 mins

Respond by completing the following statements with a suitable word or words.

a) Viewdata users can find or retrieve information by menu, page number or _____.

b) Information can be input to the system by using an _____ _____ or _____ _____.

c) Information can be transferred from a conventional computer to the viewdata computer using _____.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) As well as menus and pages, a word search facility can be used to find or retrieve information. b) Information can be input by using an editing terminal or another computer. c) Gateway is a new system for transferring information directly from a conventional computer to a viewdata computer.

ACTIVITY 34
Time guide
2 mins

Can you think of any problems which might occur through making information generally available through a viewdata system? Jot down one suggestion.

Some of the information we might like to include in the viewdata system might be confidential in nature, such as personnel records or payroll data. Clearly the system would be very limited in its usefulness if all the information saved had to be available to any user. In fact, this is not a problem, as access to any information can be restricted to those users who are authorised to see that information.

4 Uses of Viewdata Systems

Viewdata systems can either be used as a private information system, restricting access to personnel within the company, or they can be used to 'sell' information through a public viewdata system. The best known public viewdata system in the UK is Prestel.

4.1 Prestel

Prestel is owned by British Telecom and was the world's first public viewdata system.

ACTIVITY 35
Time guide
3 mins

Write down two of the elements that would go into a public viewdata information system.

_____

_____

_____

Well first we must have a viewdata computer (or computers) and these must be linked by telephone to

Information users - members of the public who want to access information held on the computer

and

Information providers - members of the public (usually companies or public organisations) who want to make information available.

4.2 Information Users

With British Telecom Prestel system any member of the public can be a 'user' by

paying a subscription

getting a specially modified TV, a modem (to connect the telephone to the TV) and a key pad. Access can also be obtained with some micro-computers

paying a fee for access to some of the pages

paying the cost of telephone calls (at local rate).

EXTENSION 3
Page 57

In order to access the Prestel system if we are subscribers we can telephone the number for the Prestel computer and input a special user number and a password. This takes us into the Prestel system and gives us access to the main menu. From this menu we should be able to access any information. There is no charge for menu pages but there are varying charges for the frames of information. Information can be accessed more quickly if we know the page number, but there is not, at the time of writing, a word search facility on Prestel.

Information available

The information available on Prestel is determined by the Information Providers who pay a fee to put information into the system. The information provider can either 'sell' their information by putting a charge on each page, or they can pay all the cost so that the user gets the information free.

ACTIVITY 36
Time guide
3 mins

Jot down two ways in which information providers might benefit from using Prestel.

We have already considered one way in which they might benefit, by charging for information. Other ways in which they might benefit include using Prestel as an advertising medium and by replacing some other means of communication such as a directory.

ACTIVITY 37
Time guide
4 mins

Here are some of the advantages Prestel offers over alternative communication systems. Beside each advantage give one example of some information which could be included.

Advantages

Information updates can become immediately available.

Only one update has to be made to the database (eg no reprinting).

Information is easily found.

There are many different examples you could have given and it's unlikely that we have chosen the same things. Here are my suggestions to compare with yours.

Advantages

Information updates can become immediately available.	Airline seats available, houses for sale at estate agents, road conditions, share prices.
Only one update has to be made to the database (eg no reprinting)	Telephone directories, trade directories.
Information is easily found.	Theatre programmes.

Although Prestel was orginally developed as an information retrieval system for the general public, it is largely in the business world that its use has developed. This is partly through the availability of information such as share prices, foreign currency exchange rates etc, where the information is constantly changing and also because of the existence of closed user groups.

Closed user groups can operate like a private viewdata system within Prestel. A group of providers and users can become a closed user group restricting the access to the information provided to other members of the same group.

A further feature which has increased the business use of Prestel has been the addition of two-way communications. Travel Agents, for instance, have used Prestel to check availability of airline seats, make the reservation and get confirmation of the booking.

ACTIVITY 38
Time guide
2 mins

What do you think is the main problem preventing more usage of Prestel by the general public. (Hint: if you haven't used Prestel, think why you haven't.) Jot down one suggestion.

The main reason that Prestel has not been used more by the general public has been the relatively high cost of buying a terminal, or specially adapted television. You may have said that the general public did not want the information which is available on Prestel. This is also partly true, because information providers will not put the information people want on the system until there are a large number of people with sets to access the information.

4.3 Micro-computer access

There has been a substantial increase in the public use of Prestel since a number of personal computer manufacturers provided Prestel links. As well as providing a link to the full page of Prestel services, special information is provided for micro-computer users, including software packages which can be bought and transferred from Prestel to the user's own micro computing system.

SELF CHECK 11
Time Guide
3 mins

Respond by completing each sentence with a suitable word or words.

a) Prestel provides information for the general public and for the _____.

b) A _____ _____ group restricts access to information provided to members of the group.

c) Business users have become the _____ users of the Prestel system.

d) Computer _____ _____ can be bought and transferred to home computers using Prestel.

The answer to this self check is here in the following words, so you'll need to check out your answers carefully. a) Prestel provides information for the general public and for the business world. b) A closed user group restricts access to information provided to members of the group. c) The main users of the Prestel system are business users. d) Micro-computer users at home can buy and transfer to their home computers computer software packages using Prestel.

I hope you have felt, working through this unit, that the impact of computers on the ways we communicate with each other affects us all. It isn't something which is just confined to new, advanced industries where some of us work.

Developments are being made all the time, speeding up response and reducing distances between us and in the next few years there will almost certainly be further exciting possibilities which we can hardly guess at now.

REFERENCE 1
Page 58

5 Summary

* Viewdata systems allow

  storage of large amounts of information
  immediate update
  easy access
  quick access.

* Viewdata information is held on frames or pages.

* Viewdata pages are accessed by menu, page number or word search.

* Information is input to a Viewdata computer using an editing terminal.

* Gateway allows information to be transferred from conventional computers to viewdata systems.

* Prestel is British Telecom's Public Viewdata system.

* Prestel provides a service for

  the general public
  the business world
  micro-computer users.

PART D PERFORMANCE CHECKS

Time guide
60 mins

1 End Check

You may now review your understanding of the unit as a whole by completing this group of questions. DON'T GUESS THE ANSWERS - if you're not sure, flick back into the unit and check before responding.

If you are still unsure then put a question mark against your response before proceeding.

TRUE/FALSE

Respond to each statement by writing TRUE or FALSE in the space provided.

1 A communication consists of a source, channel and destination. _____

2 Word Processors can replace typewriters in organisations. _____

3 A micro-computer can be programmed to act like a word processor. _____

4 Electronic mail is the only method of transferring messages from one machine to another. _____

5 The main advantage of automatic bank tellers is speed. _____

6 Electronic telephones can store frequently-used telephone numbers. _____

7 Teletext is another name for Viewdata. _____

8 Prestel is a Public Viewdata system. _____

COMPLETION

Respond by completing each sentence with a suitable word or words.

9 A number of word processors can share a printer or _____.

10 We must always be able to _____ information which has been stored.

11 Word Processors and/or micro-computers can be linked together by _____.

12 Messages can be transmitted between two work stations using _____ _____.

13 _____ machines can be used to send copies of a printed sheet from one location to another.

14 Electronic telephones can _____ frequently-used numbers.

15 Viewdata is an _____ _____ system.

16 A Closed User Group operates like a private viewdata system within _____.

MULTIPLE CHOICE

Respond to each question by putting a tick against the ONE answer which is most correct.

17 A word processor can permanently store information on

a) central processing unit

b) printer

c) a floppy disc

d) screen

18 A facsimile machine can be used to transmit

a) drawings only

b) any printed information

c) short messages

d) messages held on computer

19 Which of the following is NOT a feature of electronic telephones?

a) auto-dialling

b) cheaper telephone calls

c) teleconferencing

d) on-hook dialling

20 Which of the following is an information retrieval system?

a) book

b) floppy disc unit

c) directory

d) filing Cabinet

21 Which of the following is a unique feature of Viewdata systems?

a) paged information

b) large storage

c) link by telephone

d) easy retrieval without training

22 Computers and Word Processors can be linked together by

a) floppy disc units

b) plugs

c) cables

d) transmitters

23 Which of the following is not a feature of a word processor?

a) printer

b) keyboard

c) mailing lists

d) screen

24 Which of the following is an advantage of the telephone over the postal system?

a) immediate response

b) permanent record

c) easy transfer of large amounts of information

d) it doesn't matter if the receiver is available

END CHECK - Checkout

Audio Tape Side Two Time Guide 35 mins

The answers and explanations for these End Checks are on Side 2 of our Audio Tape. Have your responses with you as you play this tape. As you listen you can check out how well you have done and make notes as you proceed.

2 Tutor Check

Time guide 60 mins

Margaret is a supervisor of six staff in a large busy branch of a national travel agents. The company have installed a number of items of new technology to aid in the processing of holiday bookings. Included in the new technology are word processors, a Prestel link and membership of a closed user group (of which airlines, tour operators etc are also members) and electronic telephones.

The tasks which Margaret's workteam have to carry out include:

* Dealing with customer enquiries at the desk/by telephone.
* Despatching brochures.
* Enquiries on holiday availability/airline seat availability to tour operators and airlines.
* Booking of holidays and airline seats.
* Sending out tickets and holiday confirmation.

You need only write ONE or TWO sentences against each of the following questions.

1) How could the word processor reduce the work load on despatching brochures, holiday confirmation and tickets?

2) How could the Prestel Closed User Group be used to help with the booking of holidays?

3) What would be the main advantages of the Prestel system over using telephone and postal systems?

4) How could the electronic telephones help the desk clerks?

(Hint: Not all enquiries and bookings can be made via Prestel.)

Send to Tutor

Now get your answers to your study tutor either by post or handing it over personally. You will receive your tutor's assessment and comment back through the post as soon as can be managed.

3 Work-based Project

Time guide 60 mins

1 Make a list of up to 10 types of communication you or your workteam make as part of your job e.g. issuing instructions, reporting performance.

2 Describe how these communications are currently made, e.g. reporting performance: supervisor to boss by telephone.

3 Either

a) explain why the current method is the best means of conveying that communication

or

b) explain how the communications technology described in this unit could improve the communication.

If you already use new technology in your workplace, you could include a description of it in your answer to question 3.

Send to tutor

Now get your answers to your study tutor either by post or handing it over personally. You will receive your tutor's assessment and comment back through the post as soon as can be managed.

PART E UNIT REVIEW

1 Return to Objectives

Having completed your work on this unit, let's review how you feel about each of our four opening objectives. I will repeat them here and add comments to each.

You should now be better able to:

* **IDENTIFY AND DESCRIBE EQUIPMENT USED IN MODERN COMMUNICATION SYSTEMS**

We have covered a wide range of modern communications equipment in the unit so you should be well able to do this. However, technology is constantly changing so you may notice some differences in the equipment installed at your workplace.

* **LIST THE BENEFITS OF VARIOUS ITEMS OF EQUIPMENT IN PARTICULAR WORK SITUATIONS**

In the unit we have compared items of equipment such as facsimile and electronic mail and considered appropriate applications for each.

* **ORGANISE YOUR WORKTEAM TO MAKE BEST USE OF EQUIPMENT AVAILABLE**

We have looked at the sorts of areas which can be improved by available technology, e.g. speed of typing, speed of communication. Maximum benefit will only be achieved if people are appropriately matched to the equipment.

* **ASSESS HOW YOU AND YOUR WORKTEAM CAN BENEFIT FROM THIS MODERN COMMUNICATION TECHNOLOGY**

If you already have, or are about to have, this type of equipment installed I hope you will not see it as an opportunity to carry out your existing tasks more easily.

We very quickly get used to using new technology and take for granted the tremendous advances it offers us in communicating more quickly, further and more effectively. Advanced communication systems are not a threat.

I hope that you will now find that new communication technology is something which helps us all to do our jobs more easily and more effectively.

I hope that the work you have done was enjoyable and useful enough to encourage you to continue in your studies.

2 Extensions

I recommend that you take up as many of these extensions as you can. They will further increase your understanding and interest. You will also be able to check out a number of the ideas that I mention in the Unit. The extra time and effort will prove very worthwhile.

EXTENSION 1

Book: The Choice Series Unit 40: Computers

Author: David Austin

Publisher: Northern Regional Management Centre

As we have seen, computers are now often part of communication systems. This unit will give you a good general introduction to computer systems.

EXTENSION 2 Word Processing Manual - If you have word processors at your work place there should be an individual set of instructions for them. Read the manual and get to know the specific features of your machines. If your firm does not use word processors there should be one available at the Resource Centre.

EXTENSION 3 Prestel - The only way to judge whether the Prestel system is easy to use is to try it! If your firm is not a Prestel User it should be available at the Resource Centre. Once you have been authorised to use the system it is simply a case of keying in numbers from a 'menu' to access information.

These extension opportunities can all be taken up via your Support Centre.

They will either have the materials or will arrange that you have access to the materials. However it may be more convenient to check out the materials with your Personnel or Training people at work - they may well give you access. There are other good reasons for approaching your own people, for example they will become aware of your interest and you can involve them in your development.

3 References

REFERENCE 1	Book:	This is it - a manager's guide to information technology
	Author:	J Eaton and J Smithers
	Publisher:	Phillip Allan
REFERENCE 2	Book:	Data Processing and Management Information Systems 5th Edition
	Author:	R G Anderson
	Publisher:	M & E Handbook

These references can all be taken up via your Support Centre. They will either have the materials or will arrange that you have access to the materials. However check with your Personnel or Training people at work - they may well give you access. There are other good reasons for approaching your own people, for example they will become more aware of your interest and you can involve them in your development.

If you do wish to make use of these references then don't think that you must read them right through. Just dip into them for a slighly wider treatment of the topic raised by the unit.

I should warn that the language and style of the writing is often difficult to cope with. So don't struggle with it too much. Do what I do when in difficulty, put the book back on the shelf and find a better one!

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